

# WEB TABLES

U.S. DEPARTMENT OF EDUCATION  
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## STEM in Postsecondary Education: Entrance, Attrition, and Coursetaking Among 2003–04 Beginning Postsecondary Students

Science, technology, engineering, and mathematics (STEM) fields are widely regarded as critical to the national economy (National Science Board 2010). Growing concern about America's ability to maintain its competitive position in the global marketplace has prompted calls for the U.S. education system to produce more graduates with training and expertise in STEM fields (National Academy of Science 2005; National Governors Association 2007; National Science Board 2007; President's Council of Advisors on Science and Technology 2012). Despite this national sense of urgency and the billions of federal dollars being spent to encourage students to enter STEM fields (Government Accountability Office 2012), the percentage of U.S. undergraduates pursuing and earning STEM degrees has changed little over recent years (Snyder and Dillow 2011;

Staklis and Chen 2010).<sup>1</sup> To provide a nationally representative portrait of undergraduate students' experiences in STEM education, these Web Tables summarize longitudinal data from a cohort of first-time, beginning students who started postsecondary education in a bachelor's or associate's degree program in 2003–04. In the tables, we examine students' entrance into and attrition from STEM fields and the extent to which they participated in undergraduate STEM coursework over a period of 6 academic years, from 2003–04 to 2008–09.

Specifically, tables 1 through 4 present data regarding students' entrance into and attrition from STEM fields. Table 1 provides an overview of students' entrance into various fields, including STEM fields and five non-STEM fields—social/behavioral sciences, humani-

ties, business, education, and health sciences—during 6 years of college enrollment between 2003 and 2009. Table 2 shows attrition in both STEM fields and selected non-STEM fields. Table 3 displays the field in which students last enrolled after they switched out of STEM or non-STEM fields. Table 4 shows the demographic, high school, and postsecondary enrollment characteristics of students who left STEM fields.

Tables 5 through 17 present data concerning students' participation in undergraduate STEM coursework and their performance in STEM courses. Tables 5 through 9 focus on students' STEM coursetaking and grade point averages (GPAs) in their first year of enrollment, and tables 10 through 17 present these data over 6 years of enrollment. Specifically, these tables show the extent to which students

took STEM courses in the first year and over 6 years (tables 5 and 10); indicate the highest level of math course taken (tables 7 and 12); list the number of credits earned in various STEM subjects (tables 13 to 15); report the ratio of withdrawn or failed STEM courses to all STEM courses attempted (tables 6 and 11); present students' grade point averages (GPAs) in STEM and non-STEM courses (tables 8 and 16); and examine STEM versus non-STEM GPAs (tables 9 and 17). In each of these tables, students are grouped by whether they entered STEM fields or not. If they did enter STEM fields, they are grouped by whether they persisted in or left STEM fields, or if they did not enter, by whether they persisted in postsecondary education or left without earning a degree or certificate. For a detailed classification of STEM courses in the Web Tables, see appendix table A.

## DATA

The data presented in the Web Tables were generated from the 2003–04 Beginning Postsecondary Students Longitudinal Study (BPS:04/09) and its 2009 Postsecondary Education Transcript Study (PETS:09) component. BPS:04/09 began in 2003–04 with a nationally representative sample of approximately 19,000 first-time postsecondary students identified in the 2003–04 National Postsecondary Student Aid Study (NPSAS:04).<sup>2</sup> These students were interviewed three times:

in 2004, at the end of their first year in postsecondary education; in 2006, about 3 years after their initial college entry; and in 2009, about 6 years after they first enrolled. The surveys collected data on students' demographic characteristics, their persistence in and completion of postsecondary education programs, their transition into employment, and changes over time in their goals, marital status, income, and debt, among other indicators. In 2009, the study also collected transcript data from all institutions that BPS students attended during the 6-year period since 2003–04, including the types of courses that students completed during each year of their enrollment, how many credits they earned, and their GPAs. For details on the BPS:04/09 data and survey methodology, see *2004/09 Beginning Postsecondary Students Longitudinal Study (BPS:04/09) Methodology Report* (<http://nces.ed.gov/pubs2012/2012246.pdf>).

## DEFINITIONS OF TERMS

**STEM fields** include a wide range of disciplines (see the National Science Foundation definitions of these fields at <http://www.nsf.gov/statistics/nsf11316> as an example). In these Web Tables, the following fields are classified as STEM: mathematics; physical sciences; biological/life sciences; computer/information sciences; engineering/engineering technologies, and science technologies.<sup>3</sup> For a detailed list of

STEM fields included in these Web Tables, see appendix table B.

STEM entrance is used to refer to a student's majoring in a STEM field in college. In BPS:04/09, STEM entrance can be identified at three time points: during the 2003–04 base-year survey and during the 2006 and 2009 follow-up surveys. Any student reporting a STEM major at one or more of these three points was considered a STEM entrant between 2003 and 2009.<sup>4</sup>

**STEM leavers** are a subgroup of STEM entrants who leave STEM fields either by switching to a non-STEM field or by leaving postsecondary education without earning any degree or certificate. In BPS:04/09, STEM leavers include those STEM entrants who (1) had not attained any degree or certificate by 2009 and were not enrolled in that year; (2) were enrolled in a non-STEM field in 2009; (3) were not enrolled in 2009 and had attained one or more degrees only in non-STEM fields; or (4) were not enrolled in 2009 and had attained more than one degree (one in a STEM field) but whose most recent degree was in a non-STEM field.

**STEM persisters** are a subgroup of STEM entrants who remain in STEM fields throughout their college career. In BPS:04/09, STEM persisters were STEM entrants who either were enrolled in STEM fields in 2009 or, if not

enrolled in 2009, had attained their most recent degree in a STEM field.

**STEM attrition rates** are calculated by dividing the number of STEM leavers by the total number of STEM entrants.

## ABOUT POWERSTATS

PowerStats produces the design-adjusted standard errors necessary for testing the statistical significance of differences in the estimates. It also contains a detailed description of how each variable was created and includes question wording for items coming directly from an interview.

With PowerStats, users can replicate or expand upon the tables presented in this report. The output from PowerStats includes the table estimates (e.g., percentages or means), standard errors,<sup>5</sup> and weighted sample sizes for the estimates. If the number of valid cases is too small to produce a reliable estimate (fewer than 30 cases), PowerStats prints the double dagger symbol (‡) instead of the estimate.

In addition to producing tables, PowerStats users may conduct linear or logistic regressions. Many options are available for output with the regression results. For a description of all the options available, users should access the PowerStats website  
<http://nces.ed.gov/datalab/index.aspx>.  
For more information, contact  
[powerstats@ed.gov](mailto:powerstats@ed.gov).

## VARIABLES USED

The variables used in these Web Tables are listed below. Visit the NCES DataLab website <http://nces.ed.gov/datalab> to view detailed information about how these variables were constructed and their sources. Under *Detailed Information About PowerStats Variables, Beginning Postsecondary Students, BPS: 2004/2009*, click by subject or by variable name. The program files that generated the statistics presented in these Web Tables can be found at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2013152>.

Label	Name
ACG curriculum, 2003–04	ACG1
College admissions test scores (ACT or SAT)	TESATDER
Cumulative persistence and attainment anywhere through 2009	PROUT6
Degree program, 2003–04	UGDEG
Ever received a Pell Grant through 2009	PELYRS09
Field in which student was enrolled in 2009 or field for the last degree attained through 2009	LSFLD09
GPA in all non-STEM courses taken in first year	GPA1NSM
GPA in all non-STEM courses taken through 2009	GPANSTEM
GPA in all STEM courses taken in first year	GPA1STEM
GPA in all STEM courses taken through 2009	GPASTEM
High school degree type	HSDEG
High school grade point average (GPA)	HCGPAREP
Highest degree of parents, 2003–04	PAREDUC
Highest level of math in which student earned credits in first year	MATHYR1
Highest level of math in which student earned credits through 2009	MATHYR
Highest mathematics in high school	HCMATH
Income level, 2003–04	INCGRP2
Level and control of institution first attended	FSECTOR
Number of STEM credits attempted in first year	STEMATT1
Number of STEM credits attempted through 2009	STEMATT
Number of STEM credits earned in first year	STEMERN1
Number of STEM credits earned through 2009	STEMERN
Percent of all credits earned in first year that were STEM credits	STVSTOT1
Percent of all credits earned through 2009 that were STEM credits	STVSTOT
Percent of withdrawn/failed STEM courses out of all STEM courses attempted in first year	WSTEMRA1
Percent of withdrawn/failed STEM courses out of all STEM courses attempted through 2009	WSTEMRA
Race/ethnicity	RACE
Selectivity of institution first attended	SELECTV2
Sex	GENDER
STEM GPA versus non-STEM GPA in first year	GPA1DIFF
STEM GPA versus non-STEM GPA through 2009	GPADIFF
Students who entered STEM left these fields by spring 2009	STEMCHG
Time of entrance into biological/life science field	BIOTIME

For more information, contact

Aurora D'Amico  
Postsecondary Studies Division  
National Center for Education Statistics  
1990 K Street NW  
Washington, DC 20006-5652  
(202) 502-7334

[aurora.damico@ed.gov](mailto:aurora.damico@ed.gov)

For readers with disabilities, a Section 508-compliant version of these Web Tables is available at  
<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2013152>.

## REFERENCES

Government Accountability Office (GAO). (2012). *Science, Technology, Engineering, and Mathematics Education: Strategic Planning Needed to Better Manage Overlapping Programs Across Multiple Agencies* (GAO-12-108). Washington, DC: Author.

National Academy of Science, Committee on Science, Engineering, and Public Policy (COSEPUP). (2005). *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. Washington, DC: National Academies Press.

National Governors Association (NGA). (2007). *Building a Science, Technology, Engineering and Math Agenda*. Washington, DC: Author.

## VARIABLES USED—Continued

Label	Name
Time of entrance into business field	BUSTIME
Time of entrance into computer/information science field	COMPTIME
Time of entrance into education field	EDUTIME
Time of entrance into engineering/technology field	ENGTIME
Time of entrance into health science field	HEATIME
Time of entrance into humanity field	HUMTIME
Time of entrance into mathematics field	MATHTIME
Time of entrance into physical science field	PHYTIME
Time of entrance into social/behavioral science field	SOCTIME
Time of entrance into STEM field	STEMTIME
Total credits earned in advanced laboratory science through 2009	QEALBERN
Total credits earned in calculus/advanced math through 2009	QECLCERN
Total credits earned in computer science through 2009	QECSERN
Total credits earned in engineering/technologies through 2009	ENGERN
Total credits earned in introductory college-level math through 2009	QEMATERN
Total credits earned in introductory laboratory science through 2009	QELABERN
Total credits earned in precollege-level math through 2009	QEPMAERN
Total credits earned in science through 2009	QESCIERN

National Science Board. (2007). *A National Action Plan for Addressing the Critical Needs of the U.S. Science, Technology, Engineering, and Mathematics Education System*. Arlington, VA: National Science Foundation.

National Science Board. (2010). *Preparing the Next Generation of STEM Innovators: Identifying and Developing Our Nation's Human Capital*. Arlington, VA: National Science Foundation.

President's Council of Advisors on Science and Technology (PCAST). (2012). *Engage to Excel: Producing One Million Additional College Graduates With Degrees in Science, Technology,*

*Engineering, and Mathematics*.

Washington, DC: Author.

Snyder, T.D., and Dillow, S.A. (2011). *Digest of Education Statistics 2010* (NCES 2011-015). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Staklis, S., and Chen, X. (2010). *Profile of Undergraduate Students: Trends From Selected Years, 1995–96 to 2007–08* (NCES 2010-220). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

## ENDNOTES

<sup>1</sup> In 1995–96, STEM majors accounted for 23 percent of all majors in public 4-year institutions and 18 percent of all majors in private nonprofit 4-year institutions; the percentage remained about the same (24 and 18 percent, respectively) in 2007–08 (Staklis and Chen 2010, tables 8 and 9). In 1970–71, 16 percent of bachelor's degrees conferred by U.S. degree-granting institutions were in STEM fields; the percentage stayed about the same (15 percent) in 2008–09 (Snyder and Dillow 2011, table 285).

<sup>2</sup> NPSAS:04 is a nationally representative sample of about 90,000 undergraduate, graduate, and first-professional students in about 1,600 postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico who are eligible to participate in federal Title IV student aid programs.

<sup>3</sup> Due to small sample sizes, science technology majors were combined with engineering/engineering technology majors, and the combined category is called “engineering/technologies” in the tables.

<sup>4</sup> It should be noted that comprehensive data on students' major fields during their enrollment between 2003 and 2009 were not collected in BPS:04/09. Because students could have had an unreported STEM major between the three data collection points, the number of STEM entrants may be underestimated in the tables.

<sup>5</sup> The BPS samples are not simple random samples; therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. PowerStats takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by PowerStats approximates the estimator by replication of the sampled population, using a bootstrap technique.

# National Center for Education Statistics

**Table 1.**

**ENTRANCE INTO STEM AND NON-STEM FIELDS: Percentage of 2003–04 beginning bachelor's and associate's degree students who entered STEM and selected non-STEM fields, and of these students, percentage distribution of their entrance time, by major field entered: 2003–2009**

Major field entered between 2003 and 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Entrance time				Entrance time			
	Total	Between 2003 and 2004 <sup>1</sup>	Between 2004 and 2006 <sup>2</sup>	Between 2006 and 2009 <sup>3</sup>	Total	Between 2003 and 2004 <sup>1</sup>	Between 2004 and 2006 <sup>2</sup>	Between 2006 and 2009 <sup>3</sup>
STEM field, total	27.8	63.8	26.3	9.9	19.9	59.1	28.2	12.7
Mathematics	1.7	35.7	54.8	9.5 !	0.7	47.2	47.2	‡
Physical sciences	2.9	32.6	56.2	11.3	1.6	21.8 !	58.7	19.5 !
Biological/life sciences	10.7	53.4	33.5	13.0	4.2	48.2	34.3	17.5
Engineering/technologies <sup>4</sup>	9.3	77.3	12.7	10.0	6.4	58.2	20.4	21.4
Computer/information sciences	5.9	55.7	28.0	16.3	8.5	62.8	27.3	10.0
Selected non-STEM field								
Social/behavioral sciences	21.2	35.5	50.9	13.6	11.3	35.1	44.3	20.6
Humanities	12.9	32.7	45.1	22.1	12.2	44.2	35.1	20.7
Business	26.1	50.8	37.9	11.3	25.5	52.5	32.9	14.6
Education	13.5	60.0	31.6	8.4	11.2	58.5	31.7	9.8
Health sciences	13.3	60.4	23.9	15.7	25.4	64.9	16.4	18.6

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

‡ Reporting standards not met.

<sup>1</sup>First academic year in postsecondary education.

<sup>2</sup>Between July 2004 and June 2006.

<sup>3</sup>Between July 2006 and June 2009.

<sup>4</sup>Due to small sample sizes, science technology majors were combined with engineering/engineering technology majors, and the combined category is called "engineering/technologies."

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences.

Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09).

# National Center for Education Statistics

**Table S1.**

**Standard errors for table 1: ENTRANCE INTO STEM AND NON-STEM FIELDS: Percentage of 2003–04 beginning bachelor's and associate's degree students who entered STEM and selected non-STEM fields, and of these students, percentage distribution of their entrance time, by major field entered: 2003–2009**

Major field entered between 2003 and 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Entrance time				Entrance time			
	Total	Between 2003 and 2004	Between 2004 and 2006	Between 2006 and 2009	Total	Between 2003 and 2004	Between 2004 and 2006	Between 2006 and 2009
STEM field, total	0.68	1.39	1.19	0.85	1.05	3.46	2.66	1.67
Mathematics	0.17	4.35	5.06	2.86	0.16	12.89	13.15	†
Physical sciences	0.22	3.95	4.71	2.54	0.33	7.24	9.41	6.97
Biological/life sciences	0.44	2.19	1.82	1.47	0.47	5.21	4.48	3.18
Engineering/technologies	0.52	2.05	1.35	1.42	0.56	4.09	2.89	4.31
Computer/information sciences	0.44	3.89	2.98	3.28	0.65	4.38	3.93	2.22
Selected non-STEM field								
Social/behavioral sciences	0.59	1.52	1.60	1.16	0.60	3.06	3.44	3.39
Humanities	0.64	2.19	2.41	1.97	1.45	5.53	3.93	2.99
Business	0.76	1.72	1.60	0.86	1.04	2.12	1.99	1.59
Education	0.59	2.10	1.86	1.18	0.65	2.74	2.52	1.23
Health sciences	0.55	2.28	2.16	1.94	1.19	2.11	1.62	1.85

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09).

# National Center for Education Statistics

**Table 2.**

**ATTRITION FROM STEM AND NON-STEM FIELDS: Percentage of 2003–04 beginning bachelor's and associate's degree students who persisted in or left STEM and selected non-STEM fields after their entrance into these fields between 2003 and 2009, by major field entered: Spring 2009**

Major field entered between 2003 and 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Students who left the major field			Students who persisted in the major field	Students who left the major field			Students who persisted in the major field
	Total	Left PSE without a degree/ certificate <sup>1</sup>	Switched to a different major field category <sup>2</sup>		Total	Left PSE without a degree/ certificate <sup>1</sup>	Switched to a different major field category <sup>2</sup>	
STEM field, total	48.3	20.2	28.1	51.7	69.3	36.5	32.8	30.7
Mathematics	37.6	11.6 !	25.9	62.4	77.8	36.2 !	41.7 !	‡
Physical sciences	46.0	17.7	28.2	54.0	63.7	33.7	29.9 !	36.3
Biological/life sciences	45.6	15.2	30.5	54.4	68.5	23.6	44.9	31.5
Engineering/technologies <sup>3</sup>	41.0	19.7	21.3	59.0	62.1	40.2	21.9	37.9
Computer/information sciences	59.2	31.2	28.0	40.8	71.8	41.0	30.8	28.2
Selected non-STEM field								
Social/behavioral sciences	44.9	17.2	27.6	55.1	67.6	33.4	34.2	32.4
Humanities	56.2	23.0	33.1	43.8	72.3	43.0	29.4	27.7
Business	49.7	23.2	26.5	50.3	65.7	39.7	26.0	34.3
Education	62.4	19.9	42.4	37.6	70.5	39.0	31.5	29.5
Health sciences	57.2	21.9	35.3	42.8	57.2	37.5	19.7	42.8

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

‡ Reporting standards not met.

<sup>1</sup> PSE refers to postsecondary education.

<sup>2</sup> Students who switched majors within a broad major field category (e.g., from mathematics to physics within STEM or from finance to marketing within business) are not considered as leaving that broad major field category.

<sup>3</sup> Due to small sample sizes, science technology majors were combined with engineering/engineering technology majors, and the combined category is called "engineering/technologies."

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S2.**

**Standard errors for table 2: ATTRITION FROM STEM AND NON-STEM FIELDS: Percentage of 2003–04 beginning bachelor's and associate's degree students who persisted in or left STEM and selected non-STEM fields after their entrance into these fields between 2003 and 2009, by major field entered: Spring 2009**

Major field entered between 2003 and 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Students who left the major field			Students who persisted in the major field	Students who left the major field			Students who persisted in the major field
	Total	Left PSE without a degree/ certificate	Switched to a different major field category		Total	Left PSE without a degree/ certificate	Switched to a different major field category	
STEM field, total	1.58	1.31	1.62	1.58	2.37	2.77	2.55	2.37
Mathematics	5.74	3.86	5.08	5.74	11.83	12.69	12.51	†
Physical sciences	4.61	3.30	4.78	4.61	9.32	9.93	11.40	9.32
Biological/life sciences	2.20	1.76	2.16	2.20	4.63	4.23	5.93	4.63
Engineering/technologies	2.41	1.98	2.26	2.41	4.00	4.56	3.21	4.00
Computer/information sciences	3.65	3.33	3.61	3.65	3.83	4.68	4.25	3.83
Selected non-STEM field								
Social/behavioral sciences	1.75	1.45	1.61	1.75	3.57	2.92	3.46	3.57
Humanities	2.42	2.65	2.39	2.42	4.07	5.66	3.25	4.07
Business	1.72	1.48	1.43	1.72	2.00	2.40	1.92	2.00
Education	2.18	1.63	1.94	2.18	2.57	2.94	2.68	2.57
Health sciences	2.55	2.32	2.09	2.55	2.34	2.47	1.40	2.34

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 3.**

**LAST MAJOR FIELD OF STUDY FOR STUDENTS WHO SWITCHED MAJORS: Percentage distribution of student's last field of study, by major field entered: 2003–2009**

Major field entered between 2003 and 2009	STEM	Social/ behavioral sciences				Health sciences	Other
		Humanities	Business	Education			
<b>Beginning bachelor's degree students</b>							
STEM	†	14.8	10.5	22.3	5.9	12.1	34.3
Social/behavioral sciences	10.9	†	16.4	14.8	6.2	10.1	41.7
Humanities	8.2	18.9	†	17.5	8.1	9.0	38.2
Business	14.1	21.7	11.4	†	3.6	10.0	39.2
Education	10.5	15.3	17.7	12.4	†	9.3	34.9
Health sciences	27.5	9.7	5.5 !	12.5	5.6	†	39.3
<b>Beginning associate's degree students</b>							
STEM	†	6.2	8.5 !	16.5	3.8 !	19.7	45.2
Social/behavioral sciences	5.4 !	†	15.8	20.8	4.7 !	15.0	38.3
Humanities	9.0 !	18.7	†	14.2	7.9	18.4	31.8
Business	11.8	8.3	11.5	†	2.7 !	20.3	45.4
Education	6.2 !	6.0 !	15.8	9.6 !	†	22.1	40.3
Health sciences	8.9	5.8	14.2	16.0	10.9 !	†	44.1

† Not applicable.

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

NOTE: Last major field of study was either the field in which a student was last enrolled in spring 2009 or the field for the last degree attained if the student was not enrolled in spring 2009. STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. Other includes visual/performing arts, communication/journalism/related technologies, construction trades, family/consumer sciences/human sciences, legal professions/studies, mechanic/repair technologies, multi/interdisciplinary studies, parks/recreation/leisure/fitness studies, precision production, personal/culinary services, public administration/social services, homeland security/law enforcement/protective, transportation and materials moving, and other fields. Only students who switched major fields (e.g., from STEM to business) between 2003 and 2009 are included in this table. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S3.**

**Standard errors for table 3: LAST MAJOR FIELD OF STUDY FOR STUDENTS WHO SWITCHED MAJORS:  
Percentage distribution of student's last field of study, by major field entered: 2003–2009**

Major field entered between 2003 and 2009	STEM	Social/ behavioral sciences	Humanities	Business	Education	Health sciences	Other
<b>Beginning bachelor's degree students</b>							
STEM	†	1.81	1.89	2.16	1.37	1.97	2.76
Social/behavioral sciences	2.14	†	2.46	2.66	1.35	2.13	3.48
Humanities	1.83	2.60	†	3.76	2.01	2.45	3.78
Business	2.02	2.92	2.09	†	0.85	2.00	2.90
Education	1.76	2.54	2.86	2.18	†	1.81	3.06
Health sciences	2.72	1.87	1.70	1.95	1.42	†	3.01
<b>Beginning associate's degree students</b>							
STEM	†	1.57	2.59	2.80	1.68	4.46	5.03
Social/behavioral sciences	2.09	†	4.57	5.44	1.92	4.45	5.74
Humanities	3.26	5.54	†	3.84	2.25	3.94	4.47
Business	2.36	2.17	3.05	†	0.87	3.38	3.90
Education	2.98	2.11	3.08	3.23	†	5.26	5.11
Health sciences	2.10	1.41	3.03	2.95	4.11	†	4.73

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 4.**

**CHARACTERISTICS OF STEM LEAVERS: Percentage of 2003–04 beginning bachelor's and associate's degree students who left STEM fields after their entrance into these fields, by demographic, high school, and postsecondary education characteristics: Spring 2009**

Demographic, high school, and postsecondary education characteristics	STEM leavers among beginning bachelor's degree students <sup>1</sup>		STEM leavers among beginning associate's degree students <sup>1</sup>	
	Left PSE without a degree/ certificate <sup>2</sup>	Switched major to a non-STEM field <sup>3</sup>	Left PSE without a degree/ certificate <sup>2</sup>	Switched major to a non-STEM field <sup>3</sup>
	Total	20.2	28.1	36.5
Sex				
Male	23.7	25.5	38.0	28.8
Female	14.2	32.4	32.7	42.6
Race/ethnicity <sup>4</sup>				
White	19.8	28.1	35.8	30.3
Black	29.3	36.0	41.5	36.3
Hispanic	23.1	26.4	39.9	37.6
Asian	9.8	22.6	26.2	28.1
Other	20.5	25.4	33.4 !	48.9
Highest education of parents, 2003–04				
High school or less	30.1	28.8	35.8	34.2
Some college	22.1	27.2	42.1	31.5
Bachelor's degree or higher	16.6	27.9	31.6	32.8
Income level, 2003–04 <sup>5</sup>				
Lowest quartile	29.2	28.6	45.9	25.1
Lower middle quartile	21.6	28.4	27.9	38.8
Upper middle quartile	18.2	27.5	29.6	34.1
Highest quartile	15.4	28.0	42.6	34.1
High school degree type				
High school diploma	19.8	28.2	36.6	33.1
GED/certificate	‡	‡	46.1	31.8
No high school degree or certificate	‡	‡	‡	‡
Foreign high school or homeschooled	‡	27.3 !	‡	33.0 !
Highest mathematics in high school <sup>6</sup>				
None of these	40.6	17.4 !	47.1	24.3
Algebra II/trigonometry	26.7	32.5	31.0	38.9
Pre-calculus	19.6	32.1	27.3	32.6
Calculus	12.0	23.7	28.7	37.1 !

See notes at end of table.

# National Center for Education Statistics

**Table 4.**

**CHARACTERISTICS OF STEM LEAVERS:** Percentage of 2003–04 beginning bachelor's and associate's degree students who left STEM fields after their entrance into these fields, by demographic, high school, and postsecondary education characteristics: Spring 2009—Continued

Demographic, high school, and postsecondary education characteristics	STEM leavers among beginning bachelor's degree students <sup>1</sup>		STEM leavers among beginning associate's degree students <sup>1</sup>	
	Left PSE without a degree/ certificate <sup>2</sup>	Switched major to a non-STEM field <sup>3</sup>	Left PSE without a degree/ certificate <sup>2</sup>	Switched major to a non-STEM field <sup>3</sup>
<b>ACG curriculum, 2003–04<sup>7</sup></b>				
Did not meet curricular requirements	26.6	27.0	38.1	31.3
Met curricular requirements	16.2	28.6	29.1	37.2
<b>High school grade point average (GPA)<sup>8</sup></b>				
Less than 2.50	45.8	25.3 !	41.8	36.3
2.50–2.99	24.6	32.9	37.5	30.4
3.00–3.49	22.1	32.5	36.2	31.3
3.50 or higher	14.1	25.5	21.8	38.8
<b>College admissions test scores (ACT or SAT)<sup>9</sup></b>				
Lowest (400–840)	32.0	31.9	31.5	44.4
Low middle (850–990)	26.2	27.3	32.0	35.5
High middle (1000–1130)	17.7	33.7	28.1 !	27.1
Highest (1140–1600)	14.0	24.8	25.6	37.2
<b>Selectivity of institution first attended<sup>10</sup></b>				
Very selective	11.5	26.1	‡	‡
Moderately selective	18.2	30.3	‡	‡
Minimally selective	38.4	26.4	‡	‡
Open admission	56.3	‡	36.9	32.4
<b>Level and control of institution first attended</b>				
Public 4-year	19.8	30.5	28.7	39.2
Private nonprofit 4-year	17.5	24.0	‡	‡
Private for-profit 4-year	56.8	‡	34.3	16.9 !
Public 2-year	‡	‡	36.8	33.9
Private 2-year	‡	‡	39.9	30.5 !
Other	‡	‡	‡	‡
<b>Level of institution first attended</b>				
4-year	20.2	28.1	29.2	27.9
2-year	‡	‡	37.3	33.4
Less than 2-year	‡	‡	‡	‡

See notes at end of table.

# National Center for Education Statistics

**Table 4.**

**CHARACTERISTICS OF STEM LEAVERS: Percentage of 2003–04 beginning bachelor's and associate's degree students who left STEM fields after their entrance into these fields, by demographic, high school, and postsecondary education characteristics: Spring 2009—Continued**

Demographic, high school, and postsecondary education characteristics	STEM leavers among beginning bachelor's degree students <sup>1</sup>		STEM leavers among beginning associate's degree students <sup>1</sup>	
	Left PSE without a degree/ certificate <sup>2</sup>	Switched major to a non-STEM field <sup>3</sup>	Left PSE without a degree/ certificate <sup>2</sup>	Switched major to a non-STEM field <sup>3</sup>
Ever received a Pell Grant through 2009				
No	17.7	27.1	41.2	29.1
Yes	24.6	29.7	31.8	36.5

<sup>1</sup> Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

<sup>‡</sup> Reporting standards not met.

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

<sup>2</sup> PSE refers to postsecondary education.

<sup>3</sup> Students who switched majors within STEM fields (e.g., from mathematics to physics) are not considered as leaving STEM.

<sup>4</sup> Black includes African American, Hispanic includes Latino, and Other includes American Indian, Alaska Native, Native Hawaiian, other Pacific Islanders, and individuals who indicated Two or more races or Other.

<sup>5</sup> The total income in 2002 for independent students or parents of dependent students.

<sup>6</sup> Information only available for students under age 24.

<sup>7</sup> ACG refers to Academic Competitiveness Grant. Information only available for students under age 24.

<sup>8</sup> Information only available for students under age 24 who received a high school diploma.

<sup>9</sup> Derived either from the sum of SAT I verbal and math scores or from the ACT composite score converted to an estimated SAT I combined score. Information only available for students under age 24 who took the SAT I or ACT.

<sup>10</sup> The selectivity of institution was developed only for public and private nonprofit 4-year institutions using the following criteria: whether the institution was open admission (no minimal requirements); the number of applicants; the number of students admitted; the 25th and 75th percentiles of ACT and/or SAT scores; and whether or not test scores were required. For more information, see Cunningham, A.F. (2006). *Changes in Patterns of Prices and Financial Aid* (NCES 2006-153). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S4.**

**Standard errors for table 4: CHARACTERISTICS OF STEM LEAVERS: Percentage of 2003–04 beginning bachelor's and associate's degree students who left STEM fields after their entrance into these fields, by demographic, high school, and postsecondary education characteristics: Spring 2009**

Demographic, high school, and postsecondary education characteristics	STEM leavers among beginning bachelor's degree students		STEM leavers among beginning associate's degree students	
	Left PSE without a degree/ certificate	Switched major to a non-STEM field	Left PSE without a degree/ certificate	Switched major to a non-STEM field
	Total	1.31	1.62	2.77
Sex				
Male	1.83	1.86	3.19	2.77
Female	1.59	2.37	4.07	4.17
Race/ethnicity				
White	1.55	1.79	3.42	2.81
Black	5.44	5.47	5.83	6.70
Hispanic	4.36	5.87	6.07	6.24
Asian	2.52	3.46	6.96	7.93
Other	5.40	4.67	10.68	11.13
Highest education of parents, 2003–04				
High school or less	3.69	3.39	3.36	3.68
Some college	3.42	2.95	5.97	5.19
Bachelor's degree or higher	1.49	1.87	4.92	4.75
Income level, 2003–04				
Lowest quartile	3.12	3.51	4.07	3.65
Lower middle quartile	2.58	3.19	4.05	5.39
Upper middle quartile	2.23	2.52	4.57	4.26
Highest quartile	2.10	2.27	7.81	6.37
High school degree type				
High school diploma	1.33	1.65	3.15	2.65
GED/certificate	†	†	6.87	6.36
No high school degree or certificate	†	†	†	†
Foreign high school or homeschooled	†	8.63	†	16.10
Highest mathematics in high school				
None of these	9.93	7.71	8.02	4.87
Algebra II/trigonometry	2.86	3.02	3.10	3.83
Pre-calculus	2.38	3.33	5.25	7.61
Calculus	1.34	1.86	7.84	11.16

See notes at end of table.

# National Center for Education Statistics

**Table S4.**

**Standard errors for table 4: CHARACTERISTICS OF STEM LEAVERS: Percentage of 2003–04 beginning bachelor's and associate's degree students who left STEM fields after their entrance into these fields, by demographic, high school, and postsecondary education characteristics: Spring 2009—Continued**

Demographic, high school, and postsecondary education characteristics	STEM leavers among beginning bachelor's degree students		STEM leavers among beginning associate's degree students	
	Left PSE without a degree/ certificate	Switched major to a non-STEM field	Left PSE without a degree/ certificate	Switched major to a non-STEM field
<b>ACG curriculum, 2003–04</b>				
Did not meet curricular requirements	2.95	2.88	4.88	3.45
Met curricular requirements	1.28	1.75	3.16	4.08
<b>High school grade point average (GPA)</b>				
Less than 2.50	8.18	7.61	5.71	5.06
2.50–2.99	4.89	5.75	6.88	5.27
3.00–3.49	2.34	2.74	5.95	4.94
3.50 or higher	1.49	2.03	5.17	6.00
<b>Admissions test scores (ACT or SAT)</b>				
Lowest (400–840)	5.50	6.00	4.37	6.53
Low middle (850–990)	3.67	3.32	5.54	4.93
High middle (1000–1130)	2.57	3.19	8.44	7.98
Highest (1140–1600)	1.48	1.88	7.20	8.74
<b>Selectivity of institution first attended</b>				
Very selective	1.46	2.79	†	†
Moderately selective	1.34	2.04	†	†
Minimally selective	4.84	4.61	†	†
Open admission	16.29	†	2.83	2.65
<b>Level and control of institution first attended</b>				
Public 4-year	1.60	2.13	7.98	9.66
Private nonprofit 4-year	1.84	2.26	†	†
Private for-profit 4-year	16.59	†	9.56	6.15
Public 2-year	†	†	3.07	2.51
Private 2-year	†	†	7.47	10.86
Other	†	†	†	†
<b>Level of institution first attended</b>				
4-year	1.31	1.62	5.42	5.16
2-year	†	†	2.97	2.76
Less than 2-year	†	†	†	†

See notes at end of table.

# National Center for Education Statistics

**Table S4.**

**Standard errors for table 4: CHARACTERISTICS OF STEM LEAVERS: Percentage of 2003–04 beginning bachelor's and associate's degree students who left STEM fields after their entrance into these fields, by demographic, high school, and postsecondary education characteristics: Spring 2009—Continued**

Demographic, high school, and postsecondary education characteristics	STEM leavers among beginning bachelor's degree students		STEM leavers among beginning associate's degree students	
	Left PSE without a degree/ certificate	Switched major to a non-STEM field	Left PSE without a degree/ certificate	Switched major to a non-STEM field
Ever received a Pell Grant through 2009				
No	1.50	1.79	3.28	3.24
Yes	2.21	2.61	4.15	4.64

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table 5.

**STEM COURSETAKING IN FIRST YEAR:** Percentage of 2003–04 beginning bachelor's and associate's degree students who attempted STEM credits, earned STEM credits, average STEM credits earned, and percentage of all credits earned that were STEM, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned <sup>1</sup>	Percent of all credits earned that were STEM	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned <sup>1</sup>	Percent of all credits earned that were STEM
Total	86.9	81.5	9.1	27.2	78.3	67.1	7.8	26.8
<b>Students who entered STEM fields in first year</b>								
STEM leavers <sup>2</sup>	93.8	89.5	11.4	40.3	85.5	76.9	9.7	40.4
Students who left PSE without a degree/certificate	91.4	85.9	11.5	41.4	81.6	70.5	10.0	43.3
Students who switched major to a non-STEM field	95.9	92.4	11.4	39.3	89.6	83.9	9.5	37.4
STEM persisters/completers	99.7	99.2	18.3	57.0	98.3	97.3	18.8	58.7
Students who completed a STEM degree/certificate	99.7	99.2	19.7	58.8	100.0	100.0	22.3	64.0
<b>Students who entered STEM fields after first year</b>								
STEM leavers <sup>2</sup>	92.7	88.1	9.3	32.0	83.9	73.5	7.9	28.5
Students who left PSE without a degree/certificate	92.2	82.3	8.7	33.9	81.7	66.7	7.7	28.8
Students who switched major to a non-STEM field	93.0	91.6	9.6	30.9	87.0	83.1	8.0	28.2
STEM persisters/completers	96.4	94.8	13.2	43.4	91.8	82.6	11.4	38.7
Students who completed a STEM degree/certificate	97.5	96.4	14.5	46.8	99.7	99.7	14.8	50.1

See notes at end of table.

# National Center for Education Statistics

Table 5.

**STEM COURSETAKING IN FIRST YEAR:** Percentage of 2003–04 beginning bachelor's and associate's degree students who attempted STEM credits, earned STEM credits, average STEM credits earned, and percentage of all credits earned that were STEM, by STEM entrance and persistence through 2009—Continued

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned <sup>1</sup>	Percent of all credits earned that were STEM	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned <sup>1</sup>	Percent of all credits earned that were STEM
Students who did not enter STEM field, total	83.3	76.8	6.9	20.2	75.8	63.7	6.7	23.2
Students who persisted in or completed PSE	84.9	80.7	7.1	20.6	79.4	70.6	7.1	23.8
Students who completed a degree/certificate	85.2	82.3	7.2	20.7	82.3	75.3	7.6	23.8
Students who left PSE without a degree/certificate	77.9	62.8	6.0	18.8	71.6	55.6	6.1	22.5

<sup>1</sup> Include only students who earned STEM credits in the first year.

<sup>2</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S5.**

**Standard errors for table 5: STEM COURSETAKING IN FIRST YEAR: Percentage of 2003–04 beginning bachelor's and associate's degree students who attempted STEM credits, earned STEM credits, average STEM credits earned, and percentage of all credits earned that were STEM, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned	Percent of all credits earned that were STEM	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned	Percent of all credits earned that were STEM
<b>Total</b>	<b>0.64</b>	<b>0.77</b>	<b>0.10</b>	<b>0.41</b>	<b>1.21</b>	<b>1.35</b>	<b>0.31</b>	<b>0.95</b>
<b>Students who entered STEM fields in first year</b>								
STEM leavers	1.29	1.94	0.41	1.41	3.12	3.51	0.88	2.32
Students who left PSE without a degree/certificate	2.34	3.30	0.77	2.48	4.92	5.49	1.13	4.06
Students who switched major to a non-STEM field	1.27	2.32	0.42	1.59	3.54	4.03	1.07	2.91
STEM persisters/completers	0.15	0.37	0.44	1.27	1.12	1.32	1.58	3.11
Students who completed a STEM degree/certificate	0.19	0.42	0.44	1.06	†	†	1.83	3.56
<b>Students who entered STEM fields after first year</b>								
STEM leavers	1.73	2.17	0.46	1.46	4.01	4.46	0.64	2.43
Students who left PSE without a degree/certificate	2.87	4.61	0.80	2.49	5.70	5.54	0.97	3.36
Students who switched major to a non-STEM field	2.26	2.39	0.53	1.83	4.53	5.30	0.83	3.33
STEM persisters/completers	1.17	1.40	0.46	1.37	2.53	3.64	1.15	3.03
Students who completed a STEM degree/certificate	1.11	1.31	0.53	1.53	0.21	0.21	1.78	4.15
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	0.83	0.91	0.09	0.38	1.51	1.88	0.23	0.97
Students who completed a degree/certificate	0.90	0.92	0.09	0.40	1.64	2.68	0.29	1.24
Students who left PSE without a degree/certificate	2.03	2.62	0.19	1.30	2.04	2.10	0.28	1.10

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 6.**

**WITHDRAWN/FAILED STEM COURSES IN FIRST YEAR:** Percentage of 2003–04 beginning bachelor's and associate's degree students who withdrew from or failed any STEM courses and percentage of withdrawn or failed STEM courses out of all STEM courses attempted, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	Percent with withdrawn/failed STEM courses	Percent of withdrawn/failed STEM courses out of all STEM courses attempted	Percent with withdrawn/failed STEM courses	Percent of withdrawn/failed STEM courses out of all STEM courses attempted
<b>Total</b>	<b>13.8</b>	<b>5.9</b>	<b>23.9</b>	<b>14.3</b>
<b>Students who entered STEM fields in first year</b>				
STEM leavers <sup>1</sup>	18.8	5.9	24.7	12.9
Students who left PSE without a degree/certificate	23.9	7.9	31.6	16.2
Students who switched major to a non-STEM field	14.9	4.4	18.1	9.7
STEM persisters/completers	10.6	2.0	11.3	2.6
Students who completed a STEM degree/certificate	10.2	1.7	8.4 !	1.5 !
<b>Students who entered STEM fields after first year</b>				
STEM leavers <sup>1</sup>	15.3	6.2	18.5	10.2
Students who left PSE without a degree/certificate	19.7	8.5 !	23.5	11.7
Students who switched major to a non-STEM field	12.7	4.9 !	11.9 !	8.3 !
STEM persisters/completers	10.5	3.1	21.8	11.3
Students who completed a STEM degree/certificate	9.5	2.4	18.3 !	4.7 !
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	12.4	5.7	19.1	10.9
Students who completed a degree/certificate	10.7	4.6	16.5	9.0
Students who left PSE without a degree/certificate	19.2	10.5	32.5	21.4

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field. NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences.

Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Only students who attempted STEM credits in the first year are included in this table. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S6.**

**Standard errors for table 6: WITHDRAWN/FAILED STEM COURSES IN FIRST YEAR: Percentage of 2003–04 beginning bachelor's and associate's degree students who withdrew from or failed any STEM courses and percentage of withdrawn or failed STEM courses out of all STEM courses attempted, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	Percent with withdrawn/failed STEM courses	Percent of withdrawn/failed STEM courses out of all STEM courses attempted	Percent with withdrawn/failed STEM courses	Percent of withdrawn/failed STEM courses out of all STEM courses attempted
<b>Total</b>	<b>0.72</b>	<b>0.48</b>	<b>1.22</b>	<b>0.97</b>
<b>Students who entered STEM fields in first year</b>				
STEM leavers	2.40	1.11	3.36	2.14
Students who left PSE without a degree/certificate	4.11	2.23	4.62	3.25
Students who switched major to a non-STEM field	2.46	0.88	3.80	2.11
STEM persisters/completers	1.56	0.39	2.85	0.68
Students who completed a STEM degree/certificate	1.66	0.31	3.14	0.59
<b>Students who entered STEM fields after first year</b>				
STEM leavers	2.86	1.48	3.71	2.26
Students who left PSE without a degree/certificate	5.64	2.98	5.61	2.57
Students who switched major to a non-STEM field	3.35	1.79	4.64	3.92
STEM persisters/completers	1.63	0.57	4.31	2.35
Students who completed a STEM degree/certificate	2.00	0.61	7.32	1.66
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	0.80	0.51	1.44	1.46
Students who completed a degree/certificate	0.73	0.38	1.92	2.12
Students who left PSE without a degree/certificate	1.94	1.45	2.75	2.09

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table 7.

**HIGHEST MATH COURSE IN FIRST YEAR:** Percentage distribution of the highest level of mathematics in which 2003–04 beginning bachelor's and associate's degree students earned credits, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	No math	Precollege-level math only <sup>1</sup>	Introductory college-level math <sup>2</sup>	Calculus and advanced math	No math	Precollege-level math only <sup>1</sup>	Introductory college-level math <sup>2</sup>	Calculus and advanced math
Total	40.1	8.7	30.1	21.2	49.2	24.5	22.9	3.4
<b>Students who entered STEM fields in first year</b>								
STEM leavers <sup>3</sup>	34.3	9.3	24.0	32.4	44.2	21.2	28.4	6.2
Students who left PSE without a degree/certificate	39.9	12.1	20.2	27.8	50.5	16.2	28.0	5.3 !
Students who switched major to a non-STEM field	29.7	7.0	27.1	36.2	36.8	27.1	28.9	7.2 !
STEM persisters/completers	14.3	3.1 !	19.3	63.3	25.1	13.9	33.4	27.6
Students who completed a STEM degree/certificate	13.7	2.1 !	15.0	69.2	16.8 !	12.2 !	44.0	27.1
<b>Students who entered STEM fields after first year</b>								
STEM leavers <sup>3</sup>	36.4	10.7	30.1	22.8	43.5	22.5	30.6	3.3 !
Students who left PSE without a degree/certificate	34.6	11.4 !	36.1	18.0	48.9	27.9	19.7	‡
Students who switched major to a non-STEM field	37.6	10.3 !	26.4	25.7	35.8	14.9 !	46.3	‡
STEM persisters/completers	27.1	5.4	20.0	47.6	37.5	17.8	27.4	17.3
Students who completed a STEM degree/certificate	24.2	4.3 !	17.4	54.1	18.5 !	12.6 !	37.0	31.9 !

See notes at end of table.

# National Center for Education Statistics

**Table 7.**

**HIGHEST MATH COURSE IN FIRST YEAR: Percentage distribution of the highest level of mathematics in which 2003–04 beginning bachelor's and associate's degree students earned credits, by STEM entrance and persistence through 2009—Continued**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	No math	Precollege-level math only <sup>1</sup>	Introductory college-level math <sup>2</sup>	Calculus and advanced math	No math	Precollege-level math only <sup>1</sup>	Introductory college-level math <sup>2</sup>	Calculus and advanced math
<b>Students who did not enter STEM field, total</b>	45.3	9.4	32.9	12.4	51.5	25.7	21.2	1.6
Students who persisted in or completed PSE	42.1	8.6	34.9	14.4	45.2	26.5	26.1	2.2
Students who completed a degree/certificate	40.4	7.9	35.9	15.8	41.4	26.0	29.7	2.9
Students who left PSE without a degree/certificate	56.7	12.3	25.6	5.4	58.9	24.8	15.4	1.0 !

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

‡ Reporting standards not met.

<sup>1</sup> Precollege-level math courses are courses designed to provide students the background and foundation skills necessary to move on to and succeed in their college-level math courses. Typical courses in this level include arithmetic, beginning or intermediate algebra, plane geometry, and developmental/remedial math. See appendix table A for a detailed listing of precollege-level math courses.

<sup>2</sup> Introductory college-level math courses are initial or entry-level college math courses that represent essential prerequisites for students who need to progress to advanced math courses and those whose degrees require an introduction to more rigorous mathematics. These courses are commonly referred to as “gatekeeper” or “gateway” courses. See appendix table A for a detailed listing of introductory college-level math courses.

<sup>3</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S7.**

**Standard errors for table 7: HIGHEST MATH COURSE IN FIRST YEAR: Percentage distribution of the highest level of mathematics in which 2003–04 beginning bachelor's and associate's degree students earned credits, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	No math	Precollege-level math only	Introductory college-level math	Calculus and advanced math	No math	Precollege-level math only	Introductory college-level math	Calculus and advanced math
Total	0.95	0.64	0.97	0.75	1.41	1.38	1.35	0.35
<b>Students who entered STEM fields in first year</b>								
STEM leavers	2.55	2.04	2.82	2.41	4.15	3.00	4.11	1.46
Students who left PSE without a degree/certificate	4.64	3.43	4.72	3.50	5.13	3.38	4.61	2.03
Students who switched major to a non-STEM field	3.31	2.05	3.09	3.16	6.12	4.45	5.81	2.57
STEM persisters/completers	1.82	1.00	3.35	2.99	5.46	3.88	6.49	5.17
Students who completed a STEM degree/certificate	1.89	0.99	2.12	2.41	5.92	4.62	8.46	6.74
<b>Students who entered STEM fields after first year</b>								
STEM leavers	3.40	2.81	3.74	3.37	4.87	3.94	3.91	1.32
Students who left PSE without a degree/certificate	5.77	4.72	6.58	4.49	6.38	5.76	4.59	†
Students who switched major to a non-STEM field	4.96	3.71	4.73	4.32	6.86	5.16	6.42	†
STEM persisters/completers	2.64	1.46	2.40	2.87	4.91	4.67	5.35	4.55
Students who completed a STEM degree/certificate	2.81	1.47	2.69	3.21	7.73	4.89	10.12	9.90
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	1.16	0.67	1.14	0.67	1.58	1.48	1.40	0.26
Students who completed a degree/certificate	1.19	0.67	1.20	0.77	2.12	1.88	1.96	0.44
Students who left PSE without a degree/certificate	1.30	0.65	1.34	0.82	2.90	2.21	2.16	0.63

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 8.**

**FIRST-YEAR PERFORMANCE IN STEM AND NON-STEM COURSES: Grade point average (GPA) earned by 2003–04 beginning bachelor's and associate's degree students in STEM and non-STEM courses, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	GPA for STEM courses	GPA for non-STEM courses	GPA for STEM courses	GPA for non-STEM courses
<b>Total</b>	<b>2.8</b>	<b>3.0</b>	<b>2.8</b>	<b>2.9</b>
<b>Students who entered STEM fields in first year</b>				
STEM leavers <sup>1</sup>	2.5	2.9	2.7	2.8
Students who left PSE without a degree/certificate	2.3	2.6	2.5	2.7
Students who switched major to a non-STEM field	2.6	3.1	2.9	3.0
STEM persisters/completers	3.0	3.3	3.1	3.3
Students who completed a STEM degree/certificate	3.1	3.4	3.2	3.5
<b>Students who entered STEM fields after first year</b>				
STEM leavers <sup>1</sup>	2.7	3.0	2.8	2.8
Students who left PSE without a degree/certificate	2.6	2.8	2.7	2.6
Students who switched major to a non-STEM field	2.8	3.2	3.0	2.9
STEM persisters/completers	3.0	3.2	3.1	3.0
Students who completed a STEM degree/certificate	3.1	3.3	3.2	3.2
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	2.8	3.1	2.9	3.0
Students who completed a degree/certificate	2.9	3.2	3.0	3.2
Students who left PSE without a degree/certificate	2.4	2.5	2.7	2.7

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. GPAs are only for the courses in which students earned credits. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S8.**

**Standard errors for table 8: FIRST-YEAR PERFORMANCE IN STEM AND NON-STEM COURSES: Grade point average (GPA) earned by 2003–04 beginning bachelor's and associate's degree students in STEM and non-STEM courses, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	GPA for STEM courses	GPA for non-STEM courses	GPA for STEM courses	GPA for non-STEM courses
<b>Total</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>
<b>Students who entered STEM fields in first year</b>				
STEM leavers	0.05	0.05	0.07	0.09
Students who left PSE without a degree/certificate	0.09	0.10	0.10	0.11
Students who switched major to a non-STEM field	0.05	0.04	0.11	0.11
STEM persisters/completers	0.03	0.03	0.07	0.07
Students who completed a STEM degree/certificate	0.03	0.03	0.08	0.07
<b>Students who entered STEM fields after first year</b>				
STEM leavers	0.09	0.05	0.10	0.15
Students who left PSE without a degree/certificate	0.20	0.13	0.15	0.13
Students who switched major to a non-STEM field	0.09	0.06	0.12	0.24
STEM persisters/completers	0.05	0.04	0.12	0.10
Students who completed a STEM degree/certificate	0.04	0.04	0.13	0.15
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	0.02	0.02	0.04	0.03
Students who completed a degree/certificate	0.02	0.01	0.05	0.03
Students who left PSE without a degree/certificate	0.05	0.05	0.05	0.05

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table 9.

**STEM GPA VERSUS NON-STEM GPA IN FIRST YEAR:** Percentage distribution of 2003–04 beginning bachelor's and associate's degree students by difference between their first-year grade point average (GPA) for STEM and non-STEM courses, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students					Beginning associate's degree students				
	Compared with non-STEM GPA, STEM GPA was					Compared with non-STEM GPA, STEM GPA was				
	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point
Total	16.9	20.4	51.0	8.3	3.4	16.4	17.0	47.3	9.3	10.0
<b>Students who entered STEM fields in first year</b>										
STEM leavers <sup>1</sup>	23.1	21.4	44.5	7.7	3.3 !	16.7	21.4	42.2	8.2 !	11.5
Students who left PSE without a degree/certificate	25.0	15.4	44.1	11.3	4.2 !	23.4	15.4 !	37.7	‡	18.1 !
Students who switched major to a non-STEM field	21.7	25.6	44.9	5.1	2.7 !	11.3	26.2	45.7	10.4 !	6.3 !
STEM persisters/completers	10.6	20.5	60.8	5.8	2.3 !	9.6 !	16.6	64.6	4.9 !	‡
Students who completed a STEM degree/certificate	8.5	20.8	63.7	5.1	1.8 !	10.5 !	16.7 !	67.5	‡	‡
<b>Students who entered STEM fields after first year</b>										
STEM leavers <sup>1</sup>	18.1	22.9	44.0	11.7 !	3.4 !	20.2	14.6	43.4	‡	14.7 !
Students who left PSE without a degree/certificate	13.2 !	22.8	34.7	25.0 !	‡	22.1 !	9.5 !	43.2	‡	20.8 !
Students who switched major to a non-STEM field	20.7	22.9	48.9	4.6 !	‡	18.0 !	20.5 !	43.5	‡	‡
STEM persisters/completers	8.9	22.5	61.7	5.8	‡	7.5 !	11.5 !	56.1	11.4	13.5 !
Students who completed a STEM degree/certificate	6.5	23.3	64.9	4.5	‡	‡	12.9 !	68.5	‡	‡

See notes at end of table.

# National Center for Education Statistics

Table 9.

**STEM GPA VERSUS NON-STEM GPA IN FIRST YEAR:** Percentage distribution of 2003–04 beginning bachelor's and associate's degree students by difference between their first-year grade point average (GPA) for STEM and non-STEM courses, by STEM entrance and persistence through 2009—Continued

STEM entrance and persistence through 2009	Beginning bachelor's degree students					Beginning associate's degree students				
	Compared with non-STEM GPA, STEM GPA was					Compared with non-STEM GPA, STEM GPA was				
	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point
<b>Students who did not enter STEM field, total</b>	17.7	20.0	49.6	8.9	3.8	16.8	17.0	46.7	9.8	9.7
Students who persisted in or completed PSE	17.0	20.2	51.3	8.5	3.0	16.7	16.2	51.3	9.2	6.5
Students who completed a degree/certificate	16.9	20.1	52.5	8.0	2.5	16.5	16.7	55.2	7.5	4.1
Students who left PSE without a degree/certificate	21.4	18.8	41.8	10.6	7.4	17.0	18.2	39.7	10.7	14.4

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

‡ Reporting standards not met.

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Comparisons of STEM and non-STEM GPAs are only for students who earned both STEM and non-STEM credits in the first year. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S9.**

**Standard errors for table 9: STEM GPA VERSUS NON-STEM GPA IN FIRST YEAR: Percentage distribution of 2003–04 beginning bachelor's and associate's degree students by difference between their first-year grade point average (GPA) for STEM and non-STEM courses, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students					Beginning associate's degree students				
	Compared with non-STEM GPA, STEM GPA was					Compared with non-STEM GPA, STEM GPA was				
	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point
Total	0.76	0.65	0.88	0.60	0.39	1.23	1.05	1.62	0.75	1.07
<b>Students who entered STEM fields in first year</b>										
STEM leavers	2.85	2.57	2.72	1.39	0.99	3.89	4.41	3.75	2.52	3.25
Students who left PSE without a degree/certificate	5.16	3.47	4.70	2.81	1.98	6.67	5.01	5.98	†	6.14
Students who switched major to a non-STEM field	3.01	3.42	3.71	1.40	1.07	3.37	7.12	5.50	3.54	2.44
STEM persisters/completers	1.73	1.91	2.26	1.27	0.72	3.70	4.18	5.66	1.93	†
Students who completed a STEM degree/certificate	1.29	2.13	2.51	1.37	0.73	4.75	5.01	7.19	†	†
<b>Students who entered STEM fields after first year</b>										
STEM leavers	3.87	3.49	4.00	4.08	1.42	4.55	3.87	8.09	†	4.54
Students who left PSE without a degree/certificate	4.66	5.45	7.30	10.06	†	7.13	4.00	12.15	†	7.97
Students who switched major to a non-STEM field	5.49	4.43	5.09	2.11	†	6.07	6.32	7.92	†	†
STEM persisters/completers	1.55	2.47	2.97	1.49	†	2.86	3.52	6.99	3.07	6.31
Students who completed a STEM degree/certificate	1.42	2.72	3.06	1.12	†	†	5.21	9.29	†	†
<b>Students who did not enter STEM field, total</b>	0.84	0.73	1.08	0.70	0.55	1.38	1.13	1.66	0.91	1.28
Students who persisted in or completed PSE	0.85	0.82	1.15	0.62	0.53	1.61	1.44	2.00	1.18	1.23
Students who completed a degree/certificate	0.90	0.90	1.23	0.62	0.40	1.99	1.70	2.24	1.14	0.86
Students who left PSE without a degree/certificate	2.48	2.38	2.94	2.40	1.85	1.94	1.82	2.92	1.65	2.53

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 10.**

**STEM COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who attempted STEM credits, earned STEM credits, average STEM credits earned, and percentage of all credits earned that were STEM, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned <sup>1</sup>	Percent of all credits earned that were STEM	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned <sup>1</sup>	Percent of all credits earned that were STEM
<b>Total</b>	<b>97.2</b>	<b>94.3</b>	<b>29.4</b>	<b>24.3</b>	<b>89.9</b>	<b>81.9</b>	<b>19.5</b>	<b>24.4</b>
<b>Students who entered STEM fields through 2009</b>								
STEM leavers <sup>2</sup>	97.9	96.1	35.1	33.1	92.2	85.1	21.6	32.8
Students who left PSE without a degree/certificate	95.3	91.4	32.2	39.1	87.8	77.4	15.8	35.4
Students who switched major to a non-STEM field	99.7	99.6	37.0	28.8	97.3	94.1	27.0	29.9
STEM persisters/completers	99.9	99.8	80.5	60.0	98.9	97.2	60.7	56.0
Students who completed a STEM degree/certificate	100.0	100.0	84.8	62.1	100.0	100.0	70.8	63.5
<b>Students who did not enter STEM field, total</b>	<b>96.5</b>	<b>92.8</b>	<b>17.3</b>	<b>15.5</b>	<b>88.8</b>	<b>80.1</b>	<b>15.3</b>	<b>20.4</b>
Students who persisted in or completed PSE	98.1	96.9	18.4	15.0	93.8	90.6	17.9	20.1
Students who completed a degree/certificate	98.3	97.8	18.7	14.5	94.5	93.1	19.3	18.8
Students who left PSE without a degree/certificate	90.7	78.1	12.5	17.5	83.0	67.8	11.2	20.9

<sup>1</sup> Include only students who earned STEM credits through 2009.

<sup>2</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S10.**

**Standard errors for table 10: STEM COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who attempted STEM credits, earned STEM credits, average STEM credits earned, and percentage of all credits earned that were STEM, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned	Percent of all credits earned that were STEM	Percent who attempted any STEM credits	Percent who earned any STEM credits	Average STEM credits earned	Percent of all credits earned that were STEM
<b>Total</b>	<b>0.35</b>	<b>0.50</b>	<b>0.61</b>	<b>0.41</b>	<b>0.83</b>	<b>0.95</b>	<b>0.58</b>	<b>0.71</b>
<b>Students who entered STEM fields through 2009</b>								
STEM leavers	0.67	0.97	1.27	0.96	2.11	3.03	1.11	1.84
Students who left PSE without a degree/certificate	1.53	2.21	2.38	1.76	3.52	4.50	1.27	3.24
Students who switched major to a non-STEM field	0.27	0.29	1.41	0.84	1.89	2.17	1.37	1.65
STEM persisters/completers	0.11	0.15	1.62	0.67	0.76	1.06	2.74	1.57
Students who completed a STEM degree/certificate	†	†	1.34	0.66	†	†	3.97	1.50
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	0.46	0.66	0.27	0.31	0.96	1.03	0.38	0.57
Students who completed a degree/certificate	0.31	0.41	0.29	0.23	0.93	1.06	0.55	0.51
Students who left PSE without a degree/certificate	0.33	0.36	0.29	0.22	1.02	1.09	0.68	0.53

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 11.**

**WITHDRAWN/FAILED STEM COURSES THROUGH 2009:** Percentage of 2003–04 beginning bachelor's and associate's degree students who withdrew from or failed any STEM courses and percentage of withdrawn or failed STEM courses out of all STEM courses attempted, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	Percent with withdrawn/ failed STEM courses	Percent of courses out of all STEM courses attempted	Percent with withdrawn/ failed STEM courses	Percent of courses out of all STEM courses attempted
<b>Total</b>	<b>30.9</b>	<b>6.5</b>	<b>43.9</b>	<b>14.5</b>
<b>Students who entered STEM fields through 2009</b>				
STEM leavers <sup>1</sup>	44.6	7.7	48.8	14.9
Students who left PSE without a degree/certificate	50.5	10.8	51.8	18.5
Students who switched major to a non-STEM field	40.5	5.6	45.7	11.1
STEM persisters/completers	38.7	2.9	42.6	5.4
Students who completed a STEM degree/certificate	33.0	1.9	32.6	2.5
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	25.2	5.6	39.3	10.8
Students who completed a degree/certificate	20.8	4.2	35.3	8.7
Students who left PSE without a degree/certificate	32.8	12.3	47.9	21.2

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Only students who attempted STEM credits through 2009 are included in this table. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S11.**

**Standard errors for table 11: WITHDRAWN/FAILED STEM COURSES THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who withdrew from or failed any STEM courses and percentage of withdrawn or failed STEM courses out of all STEM courses attempted, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	Percent with withdrawn/ failed STEM courses	Percent of courses out of all STEM courses attempted	Percent with withdrawn/ failed STEM courses	Percent of courses out of all STEM courses attempted
<b>Total</b>	<b>0.98</b>	<b>0.34</b>	<b>1.41</b>	<b>0.78</b>
<b>Students who entered STEM fields through 2009</b>				
STEM leavers	2.57	0.67	3.26	2.09
Students who left PSE without a degree/certificate	3.91	1.32	4.25	3.17
Students who switched major to a non-STEM field	3.15	0.51	4.31	1.52
STEM persisters/completers	2.04	0.21	3.95	0.78
Students who completed a STEM degree/certificate	2.18	0.17	4.42	0.47
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	1.01	0.31	1.64	0.64
Students who completed a degree/certificate	0.97	0.29	2.05	0.82
Students who left PSE without a degree/certificate	2.47	1.34	2.55	1.59

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 12.**

**HIGHEST MATH COURSE THROUGH 2009: Percentage distribution of the highest level of mathematics in which 2003–04 beginning bachelor's and associate's degree students earned credits, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	No math	Precollege-level math <sup>1</sup>	Introductory college-level math <sup>2</sup>	Calculus and advanced math	No math	Precollege-level math <sup>1</sup>	Introductory college-level math <sup>2</sup>	Calculus and advanced math
Total	15.2	5.9	44.3	34.6	29.7	21.2	40.4	8.7
<b>Students who entered STEM fields through 2009</b>								
STEM leavers <sup>3</sup>	13.7	5.2	33.2	47.9	26.4	20.5	42.6	10.6
Students who left PSE without a degree/certificate	21.0	9.7	33.7	35.6	36.9	20.6	35.9	6.6
Students who switched major to a non-STEM field	8.4	1.9 !	32.8	57.0	13.7	20.3	50.6	15.3
STEM persisters/completers	2.3 !	1.5 !	15.3	80.9	12.0	9.8	35.8	42.4
Students who completed a STEM degree/certificate	‡	0.7 !	12.0	86.2	‡	6.2 !	43.9	44.5
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	12.8	5.5	55.1	26.5	19.7	20.2	51.7	8.4
Students who completed a degree/certificate	11.3	4.7	55.8	28.3	16.2	16.9	56.5	10.4
Students who left PSE without a degree/certificate	37.2	11.8	41.4	9.6	45.6	24.5	27.3	2.6

See notes at end of table.

# National Center for Education Statistics

**Table 12.**

## HIGHEST MATH COURSE THROUGH 2009: Percentage distribution of the highest level of mathematics in which 2003–04 beginning bachelor's and associate's degree students earned credits, by STEM entrance and persistence through 2009—Continued

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

‡ Reporting standards not met.

<sup>1</sup> Precollege-level math courses are courses designed to provide students the background and foundation skills necessary to move on to and succeed in their college-level math courses. Typical courses in this level include arithmetic, beginning or intermediate algebra, plane geometry, and developmental/remedial math. See appendix table A for a detailed listing of precollege-level math courses.

<sup>2</sup> Introductory college-level math courses are initial or entry-level college math courses that represent essential prerequisites for students who need to progress to advanced math courses and those whose degrees require an introduction to more rigorous mathematics. These courses are commonly referred to as “gatekeeper” courses. See appendix table A for a detailed listing of introductory college-level math courses.

<sup>3</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S12.**

**Standard errors for table 12: HIGHEST MATH COURSE THROUGH 2009: Percentage distribution of the highest level of mathematics in which 2003–04 beginning bachelor's and associate's degree students earned credits, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	No math	Precollege-level math	Introductory college-level math	Calculus and advanced math	No math	Precollege-level math	Introductory college-level math	Calculus and advanced math
<b>Total</b>	<b>0.62</b>	<b>0.51</b>	<b>0.98</b>	<b>1.00</b>	<b>1.15</b>	<b>1.27</b>	<b>1.47</b>	<b>0.56</b>
<b>Students who entered STEM fields through 2009</b>								
STEM leavers	1.60	1.21	2.42	2.37	3.27	2.51	3.03	1.44
Students who left PSE without a degree/certificate	2.76	2.38	3.95	3.35	4.44	3.44	3.65	1.70
Students who switched major to a non-STEM field	1.80	0.85	2.75	2.85	3.21	3.67	4.02	2.63
STEM persisters/completers	0.73	0.49	1.65	1.78	2.62	2.63	4.41	4.08
Students who completed a STEM degree/certificate	†	0.35	1.70	1.88	†	2.86	6.39	6.29
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	0.81	0.62	1.18	0.90	1.32	1.39	1.63	0.55
Students who completed a degree/certificate	0.74	0.60	1.19	0.99	1.48	1.92	2.26	0.87
Students who left PSE without a degree/certificate	0.77	0.59	1.22	1.02	1.60	2.18	2.46	1.19

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table 13.

MATH COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in various levels of mathematics and average credits earned, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students						Beginning associate's degree students					
	Precollege-level math <sup>1</sup>		Introductory college-level math <sup>2</sup>		Calculus and advanced math		Precollege-level math <sup>1</sup>		Introductory college-level math <sup>2</sup>		Calculus and advanced math	
	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>
Total	19.4	4.2	65.6	5.3	34.4	7.9	43.6	5.9	47.4	5.1	8.8	7.0
Students who entered STEM fields through 2009												
STEM leavers <sup>4</sup>	19.7	4.3	65.1	5.3	47.5	7.6	45.0	6.0	51.2	5.3	11.7	6.9
Students who left PSE without a degree/certificate	19.5	4.3	56.4	5.1	35.3	9.0	36.6	5.6	39.8	4.7	6.4	6.6
Students who switched major to a non-STEM field	19.8	4.4	71.5	5.5	56.5	6.9	54.6	6.3	64.5	5.8	17.9	7.0
STEM persisters/completers	12.7	4.0	72.2	7.0	80.9	12.4	33.2	6.0	73.5	6.5	42.1	11.3
Students who completed a STEM degree/certificate	8.9	3.8	72.0	7.0	86.2	12.2	22.0	5.0	83.0	6.4	44.3	11.9

See notes at end of table.

# National Center for Education Statistics

Table 13.

MATH COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in various levels of mathematics and average credits earned, by STEM entrance and persistence through 2009—Continued

STEM entrance and persistence through 2009	Beginning bachelor's degree students						Beginning associate's degree students					
	Precollege-level math <sup>1</sup>		Introductory college-level math <sup>2</sup>		Calculus and advanced math		Precollege-level math <sup>1</sup>		Introductory college-level math <sup>2</sup>		Calculus and advanced math	
	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>3</sup>
Students who did not enter STEM field, total	20.7	4.2	64.3	4.8	22.6	4.8	44.2	5.9	44.7	4.9	5.8	4.7
Students who persisted in or completed PSE	20.1	4.1	69.8	4.9	26.4	4.8	50.7	6.1	58.1	5.1	8.4	4.5
Students who completed a degree/certificate	18.5	4.0	71.0	4.9	28.1	4.8	48.3	6.0	64.3	5.3	10.4	4.6
Students who left PSE without a degree/certificate	23.0	4.2	45.1	4.7	9.4	4.5	36.7	5.6	29.1	4.2	2.7	5.3

<sup>1</sup> Precollege-level math courses are courses designed to provide students the background and foundation skills necessary to move on to and succeed in their college-level math courses. Typical courses in this level include arithmetic, beginning or intermediate algebra, plane geometry, and developmental/remedial math. See appendix table A for a detailed listing of precollege-level math courses.

<sup>2</sup> Introductory college-level math courses are initial or entry level-college math courses that represent essential prerequisites for students who need to progress to advanced math courses and those whose degrees require an introduction to more rigorous mathematics. These courses are commonly referred to as “gatekeeper” courses. See appendix table A for a detailed listing of introductory college-level math courses.

<sup>3</sup> Include only students who earned credits in the corresponding course category.

<sup>4</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table S13.

Standard errors for table 13: MATH COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in various levels of mathematics and average credits earned, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students						Beginning associate's degree students					
	Precollege-level math		Introductory college-level math		Calculus and advanced math		Precollege-level math		Introductory college-level math		Calculus and advanced math	
	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned
Total	1.03	0.11	1.00	0.08	0.99	0.19	1.68	0.21	1.46	0.14	0.55	0.42
Students who entered STEM fields through 2009												
STEM leavers	2.41	0.24	2.20	0.15	2.34	0.34	3.63	0.27	3.10	0.25	1.85	0.55
Students who left PSE without a degree/certificate	3.67	0.43	3.62	0.27	3.30	0.65	4.70	0.39	3.96	0.26	1.65	1.16
Students who switched major to a non-STEM field	2.50	0.24	2.62	0.20	2.83	0.39	5.30	0.37	3.83	0.38	3.00	0.56
STEM persisters/completers	1.63	0.23	1.67	0.29	1.78	0.34	4.10	0.62	3.52	0.47	4.06	1.01
Students who completed a STEM degree/certificate	1.48	0.22	1.71	0.30	1.87	0.34	4.60	0.41	4.33	0.72	6.27	1.52
Students who did not enter STEM field, total	1.08	0.13	1.19	0.07	0.89	0.11	1.71	0.22	1.60	0.16	0.56	0.24
Students who persisted in or completed PSE	1.06	0.14	1.19	0.07	0.98	0.11	2.11	0.26	2.19	0.16	0.87	0.23
Students who completed a degree/certificate	1.03	0.13	1.26	0.08	1.01	0.12	2.55	0.33	2.35	0.18	1.18	0.27
Students who left PSE without a degree/certificate	2.39	0.22	2.51	0.16	1.27	0.29	2.21	0.28	2.08	0.18	0.50	0.82

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table 14.

SCIENCE COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in science courses and average credits earned, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students						Beginning associate's degree students					
	Any science		Introductory laboratory science <sup>1</sup>		Advanced laboratory science <sup>1</sup>		Any science		Introductory laboratory science <sup>1</sup>		Advanced laboratory science <sup>1</sup>	
	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>
Total	82.0	16.2	58.5	9.9	37.1	12.4	50.4	11.4	30.4	7.2	19.8	7.3
<b>Students who entered STEM fields through 2009</b>												
STEM leavers <sup>3</sup>	83.2	19.6	67.8	11.7	43.1	12.8	44.5	11.3	30.0	8.2	16.7	6.0
Students who left PSE without a degree/certificate	67.9	17.2	56.3	11.0	31.2	11.4	25.0	8.6	17.0	6.8	6.2	‡
Students who switched major to a non-STEM field	94.4	20.9	76.3	12.1	51.8	13.4	66.7	12.5	44.8	8.7	28.7	6.2
<b>STEM persisters/completers</b>												
Students who completed a STEM degree/certificate	95.8	37.9	91.8	18.0	66.1	24.9	71.2	23.5	62.0	12.9	33.8	16.8
Students who did not complete a STEM degree/certificate	97.9	40.9	94.3	18.7	73.5	25.8	74.5	24.6	67.5	12.6	31.5	20.5

See notes at end of table.

# National Center for Education Statistics

Table 14.

SCIENCE COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in science courses and average credits earned, by STEM entrance and persistence through 2009—Continued

STEM entrance and persistence through 2009	Beginning bachelor's degree students						Beginning associate's degree students					
	Any science		Introductory laboratory science <sup>1</sup>		Advanced laboratory science <sup>1</sup>		Any science		Introductory laboratory science <sup>1</sup>		Advanced laboratory science <sup>1</sup>	
	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>3</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>
Students who did not enter STEM field, total	79.0	10.2	50.2	6.5	30.0	6.8	49.9	10.0	28.1	6.1	19.3	6.2
Students who persisted in or completed PSE	86.6	10.6	54.7	6.7	34.1	6.9	65.1	11.0	37.9	6.4	27.5	6.5
Students who completed a degree/certificate	89.0	10.7	56.2	6.8	36.1	6.9	72.6	11.3	43.1	6.4	31.1	6.8
Students who left PSE without a degree/certificate	52.2	8.3	34.1	5.5	15.4	6.1	32.3	7.9	16.7	5.1	9.9	5.3

‡ Reporting standards not met.

<sup>1</sup> Laboratory science courses are science courses with a laboratory component and emphasize an empirical basis of the subject matter and include a substantial amount of experimental, observational and hands on activities. Examples of introductory lab classes include General Biology and Chemistry, while advanced lab science classes include Biochemistry, Molecular Biology, and Anatomy. See appendix table B for a detailed listing of science courses.

<sup>2</sup> Include only students who earned credits in the corresponding course category.

<sup>3</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table S14.

Standard errors for table 14: SCIENCE COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in science courses and average credits earned, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students						Beginning associate's degree students					
	Any science		Introductory laboratory science		Advanced laboratory science		Any science		Introductory laboratory science		Advanced laboratory science	
	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned
Total	0.93	0.32	1.20	0.17	0.87	0.41	1.51	0.33	1.33	0.30	1.26	0.36
<b>Students who entered STEM fields through 2009</b>												
STEM leavers	1.93	1.00	2.23	0.46	2.25	0.89	4.36	0.62	3.40	0.56	2.48	0.61
Students who left PSE without a degree/certificate	3.69	1.66	3.77	0.82	3.35	1.72	4.46	0.84	3.47	0.65	1.83	†
Students who switched major to a non-STEM field	1.29	1.18	2.39	0.50	2.73	1.02	4.66	0.78	4.65	0.67	3.95	0.72
STEM persisters/completers	1.04	1.08	1.21	0.37	2.16	0.99	3.44	2.20	3.77	0.96	4.11	1.88
Students who completed a STEM degree/certificate	0.88	1.28	1.26	0.42	2.07	1.09	5.13	3.79	5.51	1.31	6.36	2.90
<b>Students who did not enter STEM field, total</b>												
Students who persisted in or completed PSE	1.09	0.18	1.33	0.13	1.06	0.22	1.41	0.31	1.30	0.31	1.24	0.30
Students who completed a degree/certificate	0.86	0.21	1.31	0.14	1.20	0.24	1.97	0.38	1.87	0.33	1.75	0.45
Students who left PSE without a degree/certificate	0.81	0.22	1.40	0.16	1.30	0.25	2.35	0.51	2.29	0.40	2.48	0.59
2.44	0.44	2.55	0.27	1.43	0.62	1.79	0.43	1.44	0.34	1.15	0.47	

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 15.**

**ENGINEERING/TECHNOLOGIES AND COMPUTER SCIENCE COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in engineering/technologies and computer science courses and average credits earned, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Engineering/ technologies <sup>1</sup>		Computer science		Engineering/ technologies <sup>1</sup>		Computer science	
	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>	Percent earning any credits	Average credits earned <sup>2</sup>
Total	15.8	23.8	43.2	7.0	10.9	15.0	47.5	7.2
<b>Students who entered STEM fields through 2009</b>								
STEM leavers <sup>3</sup>	29.0	13.7	53.0	9.2	23.6	10.0	52.2	9.8
Students who left PSE without a degree/certificate	31.9	17.3	47.3	11.4	22.4	9.9	46.5	9.0
Students who switched major to a non-STEM field	26.9	10.5	57.2	7.9	25.0	10.0	58.5	10.6
STEM persisters/completers	49.1	41.3	53.7	14.4	52.5	28.3	76.0	20.8
Students who completed a STEM degree/certificate	48.7	43.7	51.4	14.0	61.0	31.1	84.4	25.4
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	6.8	6.7	39.4	4.4	5.5	9.7	44.5	4.9
Students who completed a degree/certificate	7.7	7.0	41.1	4.3	6.4	9.4	52.3	4.8
Students who left PSE without a degree/certificate	7.7	6.5	40.2	4.3	6.6	10.7	54.5	5.1
	3.6	4.7	33.4	4.8	4.4	10.0	35.4	5.0

<sup>1</sup> Due to small sample sizes, science technology courses were combined with engineering/engineering technology courses, and the combined category is called "engineering/technologies."

<sup>2</sup> Include only students who earned credits in the corresponding course category.

<sup>3</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S15.**

**Standard errors for table 15: ENGINEERING/TECHNOLOGIES AND COMPUTER SCIENCE COURSETAKING THROUGH 2009: Percentage of 2003–04 beginning bachelor's and associate's degree students who earned any credits in engineering/technologies and computer science courses and average credits earned, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students				Beginning associate's degree students			
	Engineering/ technologies		Computer science		Engineering/ technologies		Computer science	
	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned	Percent earning any credits	Average credits earned
<b>Total</b>	<b>0.79</b>	<b>1.37</b>	<b>1.06</b>	<b>0.31</b>	<b>0.74</b>	<b>1.19</b>	<b>1.51</b>	<b>0.49</b>
<b>Students who entered STEM fields through 2009</b>								
STEM leavers	2.27	1.30	2.17	1.09	3.38	1.30	4.56	0.90
Students who left PSE without a degree/certificate	3.80	2.51	3.81	2.33	4.02	1.39	5.82	1.04
Students who switched major to a non-STEM field	2.60	1.54	2.54	0.89	4.29	2.13	5.09	1.44
STEM persisters/completers	2.25	2.14	2.02	1.07	3.65	2.69	3.72	2.85
Students who completed a STEM degree/certificate	2.18	2.02	2.27	1.37	5.15	3.71	3.59	4.83
<b>Students who did not enter STEM field, total</b>								
Students who persisted in or completed PSE	0.63	0.77	1.34	0.15	0.73	1.98	2.11	0.24
Students who completed a degree/certificate	0.58	0.54	1.37	0.18	0.89	2.34	2.83	0.31
Students who left PSE without a degree/certificate	0.96	0.85	2.60	0.65	0.78	1.63	1.89	0.33

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table 16.**

**PERFORMANCE IN STEM AND NON-STEM COURSES THROUGH 2009: Grade point average (GPA) earned by 2003–04 beginning bachelor's and associate's degree students in STEM and non-STEM courses, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	GPA for STEM courses	GPA for non-STEM courses	GPA for STEM courses	GPA for non-STEM courses
Total	2.7	3.0	2.6	2.7
<b>Students who entered STEM fields through 2009</b>				
STEM leavers <sup>1</sup>	2.5	2.9	2.5	2.6
Students who left PSE without a degree/certificate	2.2	2.6	2.3	2.5
Students who switched major to a non-STEM field	2.7	3.1	2.7	2.9
STEM persisters/completers	3.0	3.3	3.0	3.1
Students who completed a STEM degree/certificate	3.1	3.4	3.1	3.3
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	2.8	3.1	2.7	2.9
Students who completed a degree/certificate	2.9	3.2	2.8	3.1
Students who left PSE without a degree/certificate	2.2	2.4	2.4	2.5

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences.

Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. GPAs are only for the courses in which students earned credits. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S16.**

**Standard errors for table 16: PERFORMANCE IN STEM AND NON-STEM COURSES THROUGH 2009:  
Grade point average (GPA) earned by 2003–04 beginning bachelor's and associate's degree students in  
STEM and non-STEM courses, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students		Beginning associate's degree students	
	GPA for STEM courses	GPA for non-STEM courses	GPA for STEM courses	GPA for non-STEM courses
Total	0.02	0.02	0.03	0.02
<b>Students who entered STEM fields through 2009</b>				
STEM leavers	0.05	0.04	0.05	0.08
Students who left PSE without a degree/certificate	0.08	0.07	0.09	0.08
Students who switched major to a non-STEM field	0.05	0.03	0.07	0.10
STEM persisters/completers	0.03	0.02	0.05	0.05
Students who completed a STEM degree/certificate	0.02	0.02	0.06	0.06
<b>Students who did not enter STEM field, total</b>				
Students who persisted in or completed PSE	0.02	0.01	0.03	0.03
Students who completed a degree/certificate	0.02	0.01	0.03	0.03
Students who left PSE without a degree/certificate	0.05	0.05	0.05	0.04

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

Table 17.

**STEM GPA VERSUS NON-STEM GPA THROUGH 2009:** Percentage distribution of 2003–04 beginning bachelor's and associate's degree students by difference between overall grade point average (GPA) for STEM and non-STEM courses, by STEM entrance and persistence through 2009

STEM entrance and persistence through 2009	Beginning bachelor's degree students					Beginning associate's degree students				
	Compared with non-STEM GPA, STEM GPA was					Compared with non-STEM GPA, STEM GPA was				
	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point
Total	11.2	24.6	59.0	3.8	1.5	13.9	20.2	54.1	7.1	4.8
<b>Students who entered STEM fields through 2009</b>										
STEM leavers <sup>1</sup>	15.7	27.5	48.9	6.0	1.9 !	12.5	22.3	52.4	7.7	5.0 !
Students who left PSE without a degree/certificate	19.7	23.3	43.2	11.1 !	2.7 !	18.5	18.5	47.0	7.5 !	8.5 !
Students who switched major to a non-STEM field	13.0	30.3	52.7	2.6	1.4 !	7.2	25.7	57.3	7.9 !	‡
STEM persisters/completers	4.5	25.0	68.3	1.7 !	0.6 !	2.8 !	17.2	69.3	6.5 !	4.2 !
Students who completed a STEM degree/certificate	2.6	24.6	71.5	‡	‡	‡	14.6	81.6	‡	‡
<b>Students who did not enter STEM field, total</b>	11.8	24.0	58.9	3.8	1.6	15.2	19.9	53.0	7.0	4.8
Students who persisted in or completed PSE	11.0	23.8	61.2	3.0	1.0 !	14.3	20.3	56.5	6.3	2.5
Students who completed a degree/certificate	10.3	23.7	63.0	2.3	0.7 !	12.8	20.8	61.0	4.0	1.4 !
Students who left PSE without a degree/certificate	15.2	24.9	48.5	7.5	3.9	16.6	19.3	47.3	8.1	8.6

! Interpret data with caution. Estimate is unstable because the standard error represents more than 30 percent of the estimate.

‡ Reporting standards not met.

<sup>1</sup> STEM leavers include STEM entrants who had not attained any degree/certificate by 2009 and were not enrolled in that year; were enrolled in a non-STEM field in 2009; were not enrolled in 2009 and had attained one or more degrees/certificates only in non-STEM fields; or were not enrolled in 2009 and had attained more than one degree/certificate (one in a STEM field) but whose most recent degree/certificate was in a non-STEM field.

NOTE: STEM (science, technology, engineering, and mathematics) includes mathematics, physical sciences, biological/life sciences, engineering/engineering technologies, science technologies, and computer/information sciences. Social/behavioral sciences include economics, geography, international relations and affairs, political science and government, sociology, psychology, history, and other social sciences. Humanities include English language/literature/letters, foreign languages/literatures/linguistics, liberal arts and sciences/general studies/humanities, area/ethnic/cultural/gender studies, and philosophy/theology/religious studies. Business includes business, management, marketing, and related support services. Health sciences include health professions and related sciences, and residency programs. PSE refers to postsecondary education. PSE refers to postsecondary education. Comparisons of STEM and non-STEM GPAs are only for students who earned both STEM and non-STEM credits through 2009. Estimates include students enrolled in Title IV eligible postsecondary institutions in the 50 states, the District of Columbia, and Puerto Rico. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Table S17.**

**Standard errors for table 17: STEM GPA VERSUS NON-STEM GPA THROUGH 2009: Percentage distribution of 2003–04 beginning bachelor's and associate's degree students by difference between overall grade point average (GPA) for STEM and non-STEM courses, by STEM entrance and persistence through 2009**

STEM entrance and persistence through 2009	Beginning bachelor's degree students					Beginning associate's degree students				
	Compared with non-STEM GPA, STEM GPA was					Compared with non-STEM GPA, STEM GPA was				
	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point	Lower by at least 1.0 point	Lower by 0.5 to 0.9 point	Same or different by less than 0.5 point	Higher by 0.5 to 0.9 point	Higher by at least 1.0 point
Total	0.61	0.67	0.91	0.38	0.25	0.92	1.34	1.76	0.64	0.59
<b>Students who entered STEM fields through 2009</b>										
STEM leavers	2.05	2.02	2.30	1.39	0.60	1.97	2.91	2.90	2.08	1.81
Students who left PSE without a degree/certificate	3.20	3.46	3.88	3.42	1.11	3.79	3.56	4.86	2.87	3.32
Students who switched major to a non-STEM field	2.20	2.58	3.00	0.73	0.63	1.63	4.28	4.02	2.84	†
STEM persisters/completers	0.92	1.62	1.75	0.60	0.30	1.27	2.61	3.68	2.10	1.61
Students who completed a STEM degree/certificate	0.55	1.66	1.68	†	†	†	3.94	4.76	†	†
<b>Students who did not enter STEM field, total</b>	0.72	0.82	1.10	0.40	0.32	1.13	1.43	2.00	0.73	0.67
Students who persisted in or completed PSE	0.74	0.82	1.11	0.38	0.32	1.27	1.67	2.40	0.93	0.60
Students who completed a degree/certificate	0.70	0.84	1.15	0.36	0.31	1.49	2.16	2.88	0.65	0.44
Students who left PSE without a degree/certificate	1.89	2.05	2.38	1.27	1.13	1.69	1.97	2.47	1.26	1.39

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:04/09) and Postsecondary Education Transcript Study of 2009 (PETS:09).

# National Center for Education Statistics

**Appendix table A.**  
**Classification of postsecondary STEM courses in BPS:04/09**

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Precollege-level mathematics	Descriptive Geometry, Precollegiate Geometry, Plane Geometry (27.0195) Arithmetic (27.0196) Intermediate Algebra, Precollegiate Algebra, Elementary Algebra, Basic Algebra (27.0197) Precollegiate Math, Basic Concepts of Math, Elementary Math, Introductory Math, Developmental Math, Preparatory Math (27.0198) Business Math, Precollegiate Math, Business Computations, Business Arithmetic, Consumer Math (27.9990) Developmental/Remedial Mathematics (32.0104)
Introductory college-level mathematics	Mathematics, General (27.0101) Algebra and Number Theory (27.0102) Geometry/Geometric Analysis (27.0104) Mathematics, Other (27.0199) Applied Mathematics, General (27.0301) Computational Mathematics (27.0303) Financial Mathematics (27.0305) Applied Mathematics, Other (27.0399) Statistics, General (27.0501) Mathematical Statistics and Probability (27.0502) Mathematics and Statistics (27.0503) Statistics, Other (27.0599) Number Systems, Number Structures, Mathematical Structures, Algebra for Teachers Geometry for Teachers (27.9988) Collegiate Business Math, Math for Business, Math for Economics, Math Accounting, Business Algebra (27.9989) Technical Math: Using Scientific Calculators (27.9991) Math Appreciation, Mathematics in Society, Math in the Modern World, Uses of Math, Cultural Mathematic and/or Survey of Mathematical Thought (27.9992) Technical Math, Vocational Math, Physical Measurements, Merchandising Math, Nursing Math, Shop Math and/or Math for Electronics (27.9993) Trigonometry (27.9997) Math for Behavior, Math for Economics, Math for Social Science, Contemporary Math (27.9998) Mathematics and Statistics, Other (27.9999)
Calculus/advanced mathematics	Analysis and Functional Analysis (27.0103) Topology and Foundations (27.0105) Computational and Applied Mathematics (27.0304) Mathematical Biology (27.0306) Advanced Statistics, Regression, ANOVA, Path Analysis and/or Statistical Models (27.0598) Advanced Mathematics Topics, Abstract Algebra, Advanced Analysis, Game Theory, Modern Algebra Structures, Real Analysis, Advanced Calculus, Vector Analysis, History of Mathematics/Fourier Analysis (27.9994) Calculus I, Calculus II, Calculus III, Calculus IV, Calculus for Life Science, Calculus for Economics, Calculus for Business, Calculus for Technology, Applied Calculus, Calculus for Decision-Making, Survey of Calculus and/or Short-Course Calculus (27.9995) Engineering Mathematics, Engineering Statistics, Engineering Computations, Engineering Analysis (14.9995)

See notes at end of table.

# National Center for Education Statistics

**Appendix table A.**  
**Classification of postsecondary STEM courses in BPS:04/09—Continued**

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Statistics	Educational Statistics and Research Methods (13.0603) Engineering Mathematics, Engineering Statistics, Engineering Computations, Engineering Analysis (14.9995) Biometry/Biometrics (26.1101) Biostatistics (26.1102) Financial Mathematics (27.0305) Statistics, General (27.0501) Mathematical Statistics and Probability (27.0502) Mathematics and Statistics (27.0503) Advanced Statistics, Regression, ANOVA, Path Analysis and/or Statistical Models (27.0598) Statistics, Other (27.0599) Mathematics and Statistics, Other (27.9999) Psychometrics and Quantitative Psychology (42.2708) Econometrics and Quantitative Economics (45.0603) Social Statistics, Statistics for Social Sciences, Quantitative Research in Social Science (45.9998) Business Statistics (52.1302)
Science	Animal Sciences, General (01.0901) Agricultural Animal Breeding (01.0902) Animal Health (01.0903) Animal Nutrition (01.0904) Dairy Science (01.0905) Livestock Management (01.0906) Poultry Science (01.0907) Anatomy of Domestic Animals, Physiology of Domestic Animals and/or Animal Growth (01.0998) Animal Sciences, Other (01.0999) Food Science (01.1001) Food Technology and Processing (01.1002) Food Science and Technology, Other (01.1099) Plant Sciences, General (01.1101) Agronomy and Crop Science (01.1102) Horticultural Science (01.1103) Agricultural and Horticultural Plant Breeding (01.1104) Plant Protection & Integrated Pest Management (01.1105) Range Science and Management (01.1106) Horticultural Botany, Plant Propagation and/or Plant Nutrition (01.1198) Plant Sciences, Other (01.1199) Soil Science and Agronomy, General (01.1201) Soil Chemistry and Physics (01.1202) Soil Microbiology (01.1203) Soil Sciences, Other (01.1299) Biological and Biomedical Sciences (26.0001 to 26.9999)() Physical sciences (40.0000 to 40.9999)() Biological and Physical Sciences (30.0101) Systems Science and Theory (30.0601) Biopsychology (30.1001) Natural Sciences (30.1801)

See notes at end of table.

# National Center for Education Statistics

**Appendix table A.**  
**Classification of postsecondary STEM courses in BPS:04/09—Continued**

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Science—continued	Cognitive Science (30.2501) Human Biology (30.2701) Marine Sciences (30.3201) Physiological Psychology/Psychobiology (42.2706)
Introductory laboratory science	Biology/Biological Sciences, General (26.0101) Biomedical Sciences, General (26.0102) Botany/Plant Biology (26.0301) Zoology/Animal Biology (26.0701) Chemistry, General (40.0501) Analytical Chemistry (40.0502) Physics, General (40.0801)
Advanced laboratory science	Biochemistry (26.0202) Biophysics (26.0203) Molecular Biology (26.0204) Molecular Biochemistry (26.0205) Molecular Biophysics (26.0206) Structural Biology (26.0207) Photobiology (26.0208) Radiation Biology/Radiobiology (26.0209) Biochemistry/Biophysics and Molecular Biology (26.0210) Biochemistry, Biophysics and Molecular Biology, Other (26.0299) Plant Pathology/Phytopathology (26.0305) Plant Physiology (26.0307) Plant Molecular Biology (26.0308) Botany/Plant Biology, Other (26.0399) Cell/Cellular Biology and Histology (26.0401) Anatomy (26.0403) Developmental Biology and Embryology (26.0404) Cell/Cellular and Molecular Biology (26.0406) Cell Biology and Anatomy (26.0407) Microanatomy (26.0498) Cell/Cellular Biology and Anatomical Sciences, Other (26.0499) Microbiology, General (26.0502) Medical Microbiology and Bacteriology (26.0503) Virology (26.0504) Parasitology (26.0505) Mycology (26.0506) Immunology (26.0507) Microbiology and Immunology (26.0508) Microbiological Sciences and Immunology, Other (26.0599) Entomology (26.0702) Animal Physiology (26.0707) Animal Behavior and Ethology (26.0708) Wildlife Biology (26.0709) Zoology/Animal Biology, Other (26.0799) Genetics, General (26.0801) Molecular Genetics (26.0802)

See notes at end of table.

# National Center for Education Statistics

**Appendix table A.**  
**Classification of postsecondary STEM courses in BPS:04/09—Continued**

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Advanced laboratory science—continued	Microbial and Eukaryotic Genetics (26.0803) Animal Genetics (26.0804) Plant Genetics (26.0805) Human/Medical Genetics (26.0806) Genome Sciences/Genomics (26.0807) Genetics, Other (26.0899) Physiology, General (26.0901) Molecular Physiology (26.0902) Cell Physiology (26.0903) Endocrinology (26.0904) Reproductive Biology (26.0905) Cardiovascular Science (26.0907) Exercise Physiology (26.0908) Vision Science/Physiological Optics (26.0909) Pathology/Experimental Pathology (26.0910) Oncology and Cancer Biology (26.0911) Aerospace Physiology and Medicine (26.0912) Physiology, Pathology, and Related Sciences, Other (26.0999) Pharmacology (26.1001) Molecular Pharmacology (26.1002) Neuropharmacology (26.1003) Toxicology (26.1004) Molecular Toxicology (26.1005) Environmental Toxicology (26.1006) Pharmacology and Toxicology (26.1007) Pharmacology and Toxicology, Other (26.1099) Biometry/Biometrics (26.1101) Biostatistics (26.1102) Bioinformatics (26.1103) Computational Biology (26.1104) Biomathematics, Bioinformatics, and Computational Biology, Other (26.1199) Biotechnology (26.1201) Ecology (26.1301) Marine Biology and Biological Oceanography (26.1302) Evolutionary Biology (26.1303) Aquatic Biology/Limnology (26.1304) Environmental Biology (26.1305) Population Biology (26.1306) Conservation Biology (26.1307) Systematic Biology/Biological Systematics (26.1308) Epidemiology (26.1309) Ecology and Evolutionary Biology (26.1310) Heredity (26.1397) Field Biology, Field Natural History and/or Field Botany (26.1398) Ecology, Evolution, Systematics and Population Biology, Other (26.1399) Molecular Medicine (26.1401)

See notes at end of table.

# National Center for Education Statistics

**Appendix table A.**  
**Classification of postsecondary STEM courses in BPS:04/09—Continued**

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Advanced laboratory science—continued	Neuroscience (26.1501) Neuroanatomy (26.1502) Neurobiology and Anatomy (26.1503) Neurobiology and Behavior (26.1504) Neurobiology and Neurosciences, Other (26.1599) Biological and Biomedical Sciences, Other (26.9999) Astrophysics (40.0202) Analytical Chemistry (40.0502) Inorganic Chemistry (40.0503) Organic Chemistry (40.0504) Physical Chemistry (40.0506) Polymer Chemistry (40.0507) Chemical Physics (40.0508) Environmental Chemistry (40.0509) Forensic Chemistry (40.0510) Theoretical Chemistry (40.0511) Research in chemistry and/or independent study in chemistry (40.0598) Chemistry, Other (40.0599) Geochemistry (40.0602) Geophysics and Seismology (40.0603) Paleontology (40.0604) Hydrology and Water Resources Science (40.0605) Geochemistry and Petrology (40.0606) Oceanography, Chemical and Physical (40.0607) Field studies in geology (40.0697) Environmental geology (40.0698) Geological and Earth Sciences/Geosciences, Other (40.0699) Atomic/Molecular Physics (40.0802) Elementary Particle Physics (40.0804) Plasma and High-Temperature Physics (40.0805) Nuclear Physics (40.0806) Optics/Optical Sciences (40.0807) Condensed Matter and Materials Physics (40.0808) Acoustics (40.0809) Theoretical and Mathematical Physics (40.0810) Materials Science (40.1001) Materials Chemistry (40.1002) Materials Sciences, Other (40.1099) Metallurgy (40.9998) Physiological Psychology/Psychobiology (42.2706) Medicinal and Pharmaceutical Chemistry (51.2004) Natural Products Chemistry and Pharmacognosy (51.2005)
Computer and information sciences	Computer and Information Sciences, General (11.0101) Artificial Intelligence (11.0102) Information Technology (11.0103) Informatics (11.0104)

See notes at end of table.

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**Appendix table A.**  
**Classification of postsecondary STEM courses in BPS:04/09—Continued**

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Computer and information sciences—continued	Computer Logic and/or Digital Logic (11.0198) Computer and information Science, Other (11.0199) Computer Programming/Programmer, General (11.0201) Computer Programming, Specific Applications (11.0202) Computer Programming, Vendor/Product Certification (11.0203) COBOL, FORTRAN and/or C Language (11.0295) Object-Oriented Programming Languages (JAVA, C++, VisualBasic) (11.0297) Machine Language, Assembler Language, Compiler Language, Grammar, Program Language Theory, Language Processing and/or Formal Language (11.0298) Computer Programming, Other (11.0299) Data Processing and Data Processing Technology/Technician (11.0301) Information Science/Studies (11.0401) Computer Systems Analyst/Analysis (11.0501) Data Entry/Microcomputer Applications, General (11.0601) Word Processing (11.0602) Data Entry/Microcomputer Applications (11.0693) Statistical Packages, SAS, SPSS, STATA, etc (11.0694) Data entry/computer applications for social sciences (11.0695) Data entry/computer applications for specialized service industries (11.0696) Data entry/computer applications for General Business, General Office and/or (11.0697) Presentation Graphics, Spreadsheet and/or Data Base (11.0698) Data Entry/Microcomputer Applications, Other (11.0699) Computer Science (11.0701) Introduction to Digital Computers (11.0798) Computer Software and Media Applications, General (11.0800) Web Page, Digital/Multimedia and Information Resources Design (11.0801) Data Modeling/Warehousing and Database Administration (11.0802) Computer Graphics (11.0803) Modeling, Virtual Environments and Simulation (11.0804) Computer Software and Media Applications, Other (11.0899) Computer Systems Networking and Telecommunications (11.0901) Computer Lab (11.0997) E-Learning Design and/or Computer Instructional Design (11.0998) Computer/Information Technology Administration and Management, General (11.1000) Network and System Administration/Administrator (11.1001) System, Networking, and LAN/WAN Management/Manager (11.1002) Computer and Information Systems Security/Information Assurance (11.1003) Web/Multimedia Management and Webmaster (11.1004) Information Technology Project Management (11.1005) Computer Support Specialist (11.1006) Computer/Information Technology Services Administration and Management, Other (11.1099) Computer and Information Sciences and Support Services, Other (11.9999) Computer Applications in Engineering (14.9998) Mathematics and Computer Science (30.0801) Accounting and Computer Science (30.1601)

See notes at end of table.

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## Appendix table A.

### Classification of postsecondary STEM courses in BPS:04/09—Continued

STEM subject	Specific STEM course (2010 College Course Map <sup>1</sup> )
Engineering and technologies	Engineering (14.0101 to 14.9999) Engineering Technologies (15.0000 to 15.0500, 15.0502 to 15.9999) Science and Technologies (41.0000 to 41.9999)

<sup>1</sup> Course codes in parentheses are based on the 2010 College Course Map (CCM:2010), which was developed by integrating college courses into the 2010 Classification of Instructional Programs (CIP) taxonomy from NCES. For more information on CCM:2010, see <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012162rev>. For more information on the 2010 CIP, see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

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## Appendix table B. Classification of major field of study in BPS:04/09

Major field categorization	Major field based on the 2000 edition of Classification of Instructional Programs (CIP) <sup>1</sup>
Science, technology, engineering, and mathematics (STEM )	Mathematics Physical sciences Physical sciences Other natural sciences Biological/life sciences Agriculture and related sciences Natural resources and conservation Biological and biomedical sciences Engineering/technologies Engineering and engineering technologies Science technologies Computer and information sciences
Social/behavioral sciences	Economics Geography International relations and affairs Political science and government Sociology Other social sciences Psychology History <sup>2</sup>
Humanities	English language and literature/letters Foreign languages, literatures, and linguistics Liberal arts and sciences, general studies, and humanities Area, ethnic, cultural, and gender studies Philosophy, theology, and religious studies
Business	Business, management, marketing, and related support services
Education	Education
Health sciences	Health professions and related sciences Residency programs

<sup>1</sup> For detailed information on the 2000 CIP, see <http://nces.ed.gov/pubs2002/cip2000/ciplist.asp>.

<sup>2</sup> A small number of history majors were combined with social science majors in the BPS:04/09 data.